



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,079	06/09/2005	Koji Matsumoto	0020-5381PUS1	7194
2292 7590 03/04/2010 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER				
MILLER, MICHAEL G				
ART UNIT		PAPER NUMBER		
1792				
NOTIFICATION DATE		DELIVERY MODE		
03/04/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

### Office Action Summary

**Application No.**

10/538,079

**Applicant(s)**

MATSUMOTO ET AL.

**Examiner**

MICHAEL G. MILLER

**Art Unit**

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 8-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/22)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

- 1) Applicant's arguments filed 24 DEC 2009 have been fully considered but they are not persuasive.
- 2) Applicant argues that the prior art's desire to suppress contact between the PVA film and oxygen is not materially relevant to the invention's goal of suppressing contact between the aqueous solution through which the PVA film must pass and oxygen. Examiner disagrees. As discussed in the previous Office Action, the prior art teaches the desire to suppress contact between the PVA film and oxygen both before and after the step of dipping the PVA film in an aqueous solution to perform a fixing operation (before, taught in Column 4 Lines 1-12 of Isozaki, as dry-stretching in an oxygen environment discolors the film; after, taught in Column 2 Lines 4-7 and Column 3 Line 66 - Column 4 Line 31 of Starzewski, teaching that heating in an oxygen-free environment after the fixing treatment improves polarization properties). It is obvious at this point that if contact between oxygen and the PVA film is not suppressed between the pretreatment step and the posttreatment heating step, oxygen in contact with the PVA film will be carried into the posttreatment step and cause undesirable negative effects. The combination of the prior art as presented comprises three steps – pretreatment, dipping and posttreatment. Therefore, it would have been obvious to suppress contact between the PVA film and oxygen during the dipping step. Since the PVA film comes into direct intimate contact with the aqueous solution during the dipping step, it would have been obvious to

suppress contact between the aqueous solution and oxygen so that the aqueous solution could not transfer oxygen into contact with the PVA film, leading to deleterious effects in the posttreatment step.

- 3) Applicant's evidence of unexpected results, as discussed in the Examples and Comparative Examples of the specification, do not show unexpected results in view of the prior art. Both pieces of prior art teach that keeping oxygen away from the PVA film during processing prevents optical changes in the PVA film, namely discoloration. This discoloration will impact transmittance values in the film in a negative fashion. Therefore, at the time the invention was made, it was well known in the art that excluding oxygen contact from PVA optical films would produce clear, non-discolored films. Applicant's showings cannot be considered unexpected in light of the teachings of the prior art.
- 4) Examiner maintains all grounds of rejection made in the previous Office Action which is herein made FINAL.

***Claim Rejections - 35 USC § 103***

- 5) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
- a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- 6) The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:
- (1) Determining the scope and contents of the prior art.
  - (2) Ascertaining the differences between the prior art and the claims at issue.
  - (3) Resolving the level of ordinary skill in the pertinent art.
  - (4) Considering objective evidence present in the application indicating obviousness or nonobviousness.
- 7) This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
- 8) Claims 1-3, 5, and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Isozaki (U.S. Patent 6,337,369, hereinafter '369) in view of Starzewski (U.S. Patent 5,670,092, hereinafter '092).
- 9) With regard to Claim 1, '369 teaches a method for producing a polarizing film comprising:
- a) The step of dipping a polyvinyl alcohol film in/on which iodine is adsorbed and oriented in an aqueous solution containing boric acid at a temperature of 55 – 85 degrees Celsius ('369 Column 6 Lines 38-50 and Column 4 Lines 59-67).

- b) A weight ratio of water : boric acid : potassium iodide in said aqueous solution containing boric acid is 100 : (2 - 15) : (2 - 20) ('369 Column 6 Lines 38 - 51 teaches 100 : 2 : 4).
- c) '369 is silent as to the limitation wherein contact between the aqueous solution and oxygen is suppressed.
- d) '369 teaches that for PVA dry-stretching, an oxygen-poor atmosphere is desirable to prevent discoloration of the PVA (Column 4 Lines 1-12) and that a heat treatment may be conducted after the fixing step (Column 4 Lines 59 - 67).
- e) '092 teaches that a post-fixing heat treatment improves the polarization properties of the PVA film when performed in the absence of oxygen. (Column 2 Lines 4-7, Column 3 Line 66 - Column 4 Line 31).
- f) Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have combined the method of '369 with the post-treatment step of '092 because '369 wants to create a polarizing film and '092 teaches a way to improve the optical properties of a polarizing film.
- g) '369/'092 discloses the claimed invention except for wanting to suppress contact between the aqueous solution and oxygen. It would have been obvious to one having ordinary skill in the art at the time the invention was made to perform this suppression since it was known in the art that oxygen produces deleterious effects in the processing steps immediately surrounding it (discoloration in the stretching step, impaired polarization in the heat treatment step).

10) With regard to Claim 2, '369/'092 teaches the method according to claim 1, except for the following limitation:

- a) The contact between said aqueous solution containing boric acid and oxygen is suppressed by adjusting an oxygen concentration in an atmosphere which is in contact with said aqueous solution to 5% by volume or less.
- b) Both '369 and '092 teach using nitrogen atmospheres to exclude oxygen during the dry stretching and heat treatment respectively. There would be a reasonable expectation of success of excluding oxygen from contact with the aqueous solution if a nitrogen atmosphere were kept over the aqueous solution. The degree of exclusion is a result-effective variable and as such is held to be routine experimentation.

11) Claim 3 is duly rejected on the same grounds as Claim 2, as Claim 3 calls for the method of either Claim 1 or Claim 2 wherein the exclusion is performed using an inert gas (nitrogen taught above).

12) Claim 5 is rejected on the same grounds as Claim 3, as it requires the method of Claim 3 wherein the inactive gas is nitrogen.

13) With regard to Claim 8, '369/'092 teaches the method according to claim 1, wherein:

- a) A dipping time is from 90 to 1,200 seconds ('369 Column 6 Lines 38-51, 240s).
- b) '369 teaches a temperature of 30°C for the aqueous solution which is below the claimed temperature of 50 to 85°C.
- c) '369/'092 discloses the claimed invention except for the specific temperature of the fixing bath. It would have been obvious to a person having ordinary skill in

the art at the time the invention was made to adjust the temperature of the bath, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 105 USPQ 223 (CCPA 1955).

- 14) With regard to Claim 9, '369/'092 teaches the method according to claim 1, wherein said polyvinyl alcohol film has a polymerization degree of 1,500 to 5,000 ('369 Column 6 Lines 38-51, 4000).
- 15) With regard to Claim 10, '369/'092 teaches the method according to claim 1, wherein said polyvinyl alcohol film in/on which iodine is adsorbed and oriented is a film produced by dipping an unstretched polyvinyl alcohol film in a solution containing iodine and potassium iodide and then uniaxially stretching it ('369 Column 6 Lines 38-51).
- 16) Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over '369/'092 as applied to claim 3 above, and further in view of DesMarais et al (U.S. Patent 6,362,244, hereinafter '244).
- 17) With regard to Claim 4, '369/'092 teaches the method according to claim 3 except for the following limitation:
- a) Wherein the dipping of said polyvinyl alcohol film in said aqueous solution containing boric acid is carried out while bubbling said inactive gas in said aqueous solution.



- b) As shown above, '369/092 has motivations to remove oxygen from the processing system. It known in nature that aqueous solutions can carry dissolved gases, including oxygen.
  - c) '244 teaches that deoxygenation of a liquid is known and that is usually performed by sparging a liquid with nitrogen or argon (Column 5 Lines 1-5).
  - d) Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made because '369/092 wants to make a polarizing film in a low-oxygen environment and '244 teaches that one way to remove oxygen from a liquid system is to bubble an inert gas through the system.
- 18) Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over '369/092 as applied to claim 1 above, and further in view of Dempo (U.S. Patent 5,512,178, hereinafter '178).
- 19) With regard to Claim 6, '700 teaches the method according to claim 1, except for the following limitation:
- a) Wherein said polyvinyl alcohol film is dipped in said aqueous solution containing boric acid while said aqueous solution is treated with activated carbon continuously or intermittently.
  - b) As shown above, '369/092 has motivations to remove oxygen from the processing system. It known in nature that aqueous solutions can carry dissolved gases, including oxygen, as well as other oxidizing materials.

- c) '178 teaches that an activated carbon filter can be used to remove oxidizing substances from an aqueous solution (Column 3 Lines 34 – 48). Oxygen is the prototypical oxidizing substance in nature.

20) Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made because '369/092 wants to make a polarizing film in a low-oxygen environment and '178 teaches that one way to remove oxygen from a liquid system is to bubble pass the liquid through an activated carbon filter.

***Conclusion***

21) **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL G. MILLER whose telephone number is (571)270-1861. The examiner can normally be reached on M-F 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on (571) 272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael G. Miller/  
Examiner, Art Unit 1792

/Michael Cleveland/  
Supervisory Patent Examiner, Art Unit 1792